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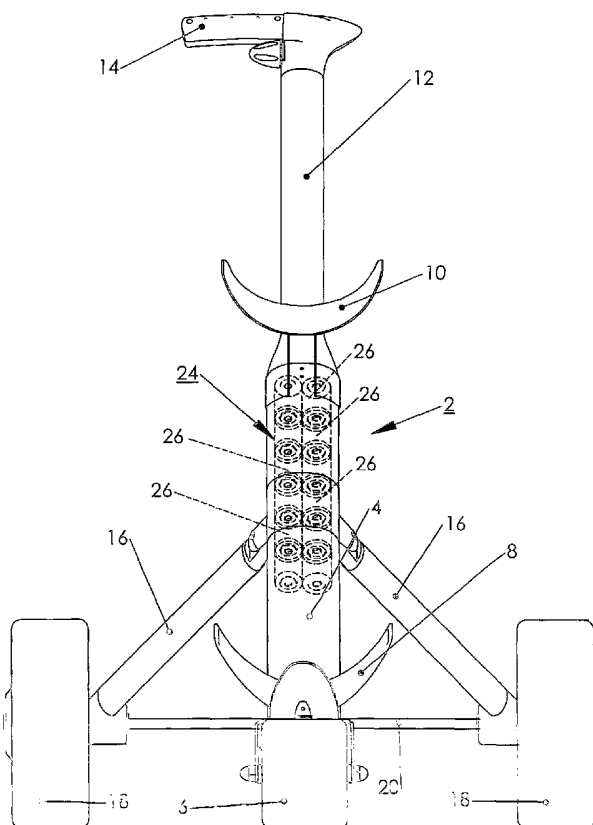
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[Continued on next page]

(54) Title: GOLF TROLLEY



(57) Abstract: An electrically powered golf trolley comprises a frame including an elongate body member (2) and a pair of opposed leg members (16) one end of each of which is mounted to the body member (2) and between the other ends of which is mounted a drive system including a pair of wheels (18) and a drive shaft (20), the trolley further comprising a battery (24) for powering the drive system, part at least of the frame being hollow, the battery being housed within the hollow interior of the frame.

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GOLF TROLLEYTECHNICAL FIELD

5 This invention relates to golf trolleys, and more particularly to electrically powered golf trolleys.

BACKGROUND

Electrically powered golf trolleys conventionally include a battery mounted on the frame of the trolley and
10 selectively operable to drive the trolley through an associated motor and drive shaft.

Most established trolleys use lead acid batteries which are bulky, heavy and cumbersome, require regular charging, and are unable to retain their charge for
15 significant periods of time.

Nickel cadmium batteries are a relatively recent alternative to lead acid batteries. However, although they retain their charge for extended periods of time, they take a long time to charge and are still relatively bulky.

20 Invariably the batteries are mounted on associated support means on the frame of the trolley, and it is usually necessary to remove the battery from the trolley prior to disassembling or folding the trolley for storage or transportation purposes.

25 All conventional batteries pose a problem to the environment when it comes to disposal.

SUMMARY OF THE INVENTION

It would be desirable to be able to provide an electrically powered golf trolley the battery of which overcame the aforementioned problems of the prior art.

5 According to the present invention there is provided an electrically powered golf trolley comprising a frame including an elongate body member and a pair of opposed leg members one end of each of which is mounted to the body member and between the other ends of which is mounted a
10 drive system including a pair of wheels and a drive shaft, the trolley further comprising a battery for powering the drive system, characterised in that part at least of the frame is hollow, the battery being housed within the hollow interior of the frame.

15 It will be appreciated that such a trolley can be much more compact than heretofore, having the general visual characteristics of a manual trolley, and can be folded more readily than established trolleys without the requirement to remove the battery, which can be charged in situ if
20 desired.

A preferred battery comprises a plurality of power cells, for example nickel metal hydride cells, contained in a housing the configuration of which matches that of the frame, conveniently being of oval cross-section.

Preferably the elongate body member of the frame comprises upper and lower extents pivotally connected to one another to enable movement between an operative condition in which the upper extent forms a continuation of the lower extent, and a storage condition in which the upper extent lies adjacent to and substantially parallel with, the lower extent, at least the upper regions of the lower extent being hollow and housing the battery.

Conveniently the lower end of the upper extent of the body member comprises an electrical contact arranged to engage the battery in the operative condition of the body member and to disengage from the battery in the storage condition of the body member.

BRIEF DESCRIPTION OF THE DRAWINGS

Figs. 1 and 2 are a front view and a side view respectively of the trolley according to the invention, and Fig. 3 is an isometric view of a trolley according to the invention showing the drive motor.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, the illustrated trolley comprises a frame having an elongate central body member 2 of hollow oval cross-section, the body member 2 including a lower extent 4 to the bottom end of which is mounted a nose wheel 6, a pair of spaced apart bag supports 8,10 being mounted adjacent the top and bottom ends of the extent 4.

The body member 2 further includes an upper extent 12 the lower end of which is pivotally mounted to the upper end of the extent 4, and the upper end of which comprises a handle 14.

5 The upper extent 12 can be pivoted from the illustrated operative condition forming a rigid extension of the extent 4 to a folded or storage condition lying adjacent and parallel to the lower extent 4.

10 A pair of leg members 16 are pivotally mounted one to each side of the central regions of the lower extent 4 of the body member 2, the free ends of the leg members 16 carrying opposed wheels 18 between which extends a drive shaft 20 driven by a motor 22 (Fig. 3).

15 The primary novelty of the trolley of the invention lies in the means by which the motor 22 is powered. These means comprise a battery indicated generally at 24 and shown in dotted outline in the drawings. In the illustrated embodiment, the battery 24 comprises 12 cells 26 contained within an outer housing of oval cross section the shape of which is such as to be a close sliding fit in 20 the upper regions of the hollow interior of the lower extent 4 of the body member 2. The cells 26 are nickel metal hydride, enabling the battery to be relatively compact and to be charged relative quickly, although other 25 batteries could be used.

An electric contact element (not shown) provided in the lower end of the upper extent 12 of the body member 2 engages the battery 24 to complete an electric circuit including the motor 22 the condition of which circuit is
5 under the control of an on-off switch and variable speed control contained in the handle 14.

It will be appreciated that the location of the battery 24 within the frame of the trolley, which is conveniently made from extruded brushed aluminium tube of
10 oval cross-section bonded to aluminium castings, results in a trolley having the visual characteristics of a manual trolley and being able to fold more compactly than conventional electric trolleys without the requirement to remove the battery 24.

15 The battery 24 may be charged whilst still contained within the frame of the trolley with the upper extent 12 of the body member 2 in its folded or storage condition, there being good heat dissipation through the metal of the frame, while the provision of the contact element in the lower end
20 of the upper extent 12 of the body member 2 ensures that, with the body member 2 in its rigid, operative condition, the battery 24 is always in-circuit for powering the motor 22, and, with the body member 2 in its folded or storage condition, the battery 24 is disconnected from the circuit.

Clearly the configurations of the body member 2 and the battery 24 may be other than of oval cross-section, and may differ one from the other, providing the battery 24 can be housed within the body member, conveniently the lower
5 extent 4, but alternatively the upper extent 12.

In an alternative embodiment, the battery 24 may be housed other than in the body member 2, for example in the leg members 16. Other modifications and variations will be apparent to those skilled in the art.

CLAIMS

1. An electrically powered golf trolley comprising a frame including an elongate body member (2) and a pair of
5 opposed leg members (16) one end of each of which is mounted to the body member (2) and between the other ends of which is mounted a drive system including a pair of wheels (18) and a drive shaft (20), the trolley further comprising a battery (24) for powering the drive system,
10 characterised in that part at least of the frame is hollow, the battery being housed within the hollow interior of the frame.

2. A golf trolley as claimed in claim 1 in which the
15 battery (24) comprises a plurality of power cells (26) contained in a housing the configuration of which matches that of the frame.

3. A golf trolley as claimed in claim 2 in which the
20 power cells are nickel metal hydride cells.

4. A golf trolley as claimed in claim 2 or claim 3 in which the housing of the battery (24) and the part of the frame in which the battery is housed are of oval cross-
25 section.

5. A golf trolley as claimed in any one of claims 1 to 4 in which the elongate body member (2) of the frame comprises upper and lower extents (12,4) pivotally connected to one another to enable movement between an operative condition in which the upper extent (12) forms a continuation of the lower extent (4), and a storage condition in which the upper extent (12) lies adjacent to and substantially parallel with, the lower extent (4), at least the upper regions of the lower extent (4) being hollow and housing the battery (24).

6. A golf trolley as claimed in any one of claims 1 to 4 in which the lower end of the upper extent (12) of the body member (2) comprises an electrical contact arranged to engage the battery (24) in the operative condition of the body member (2) and to disengage from the battery (24) in the storage condition of the body member (2).

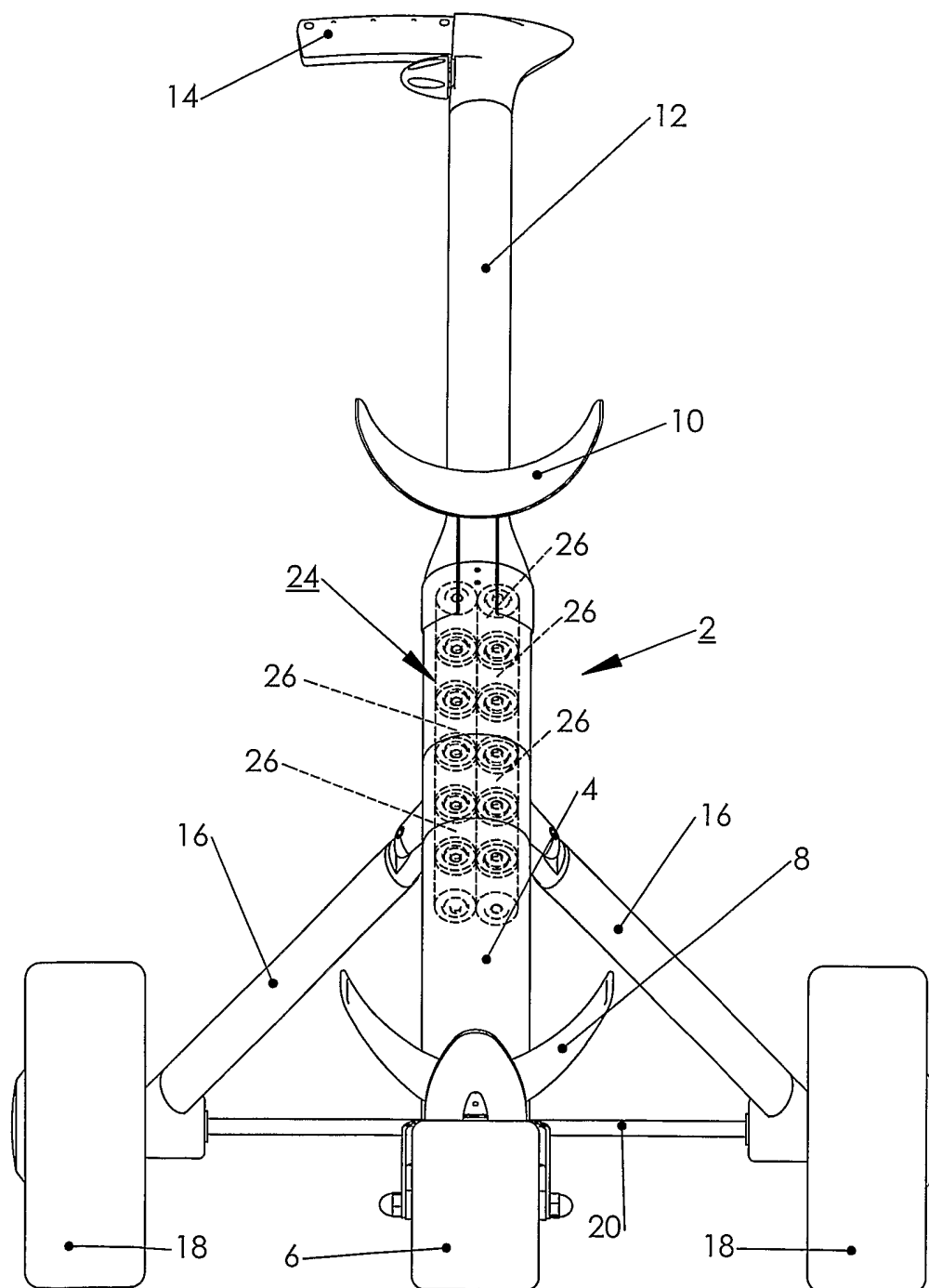
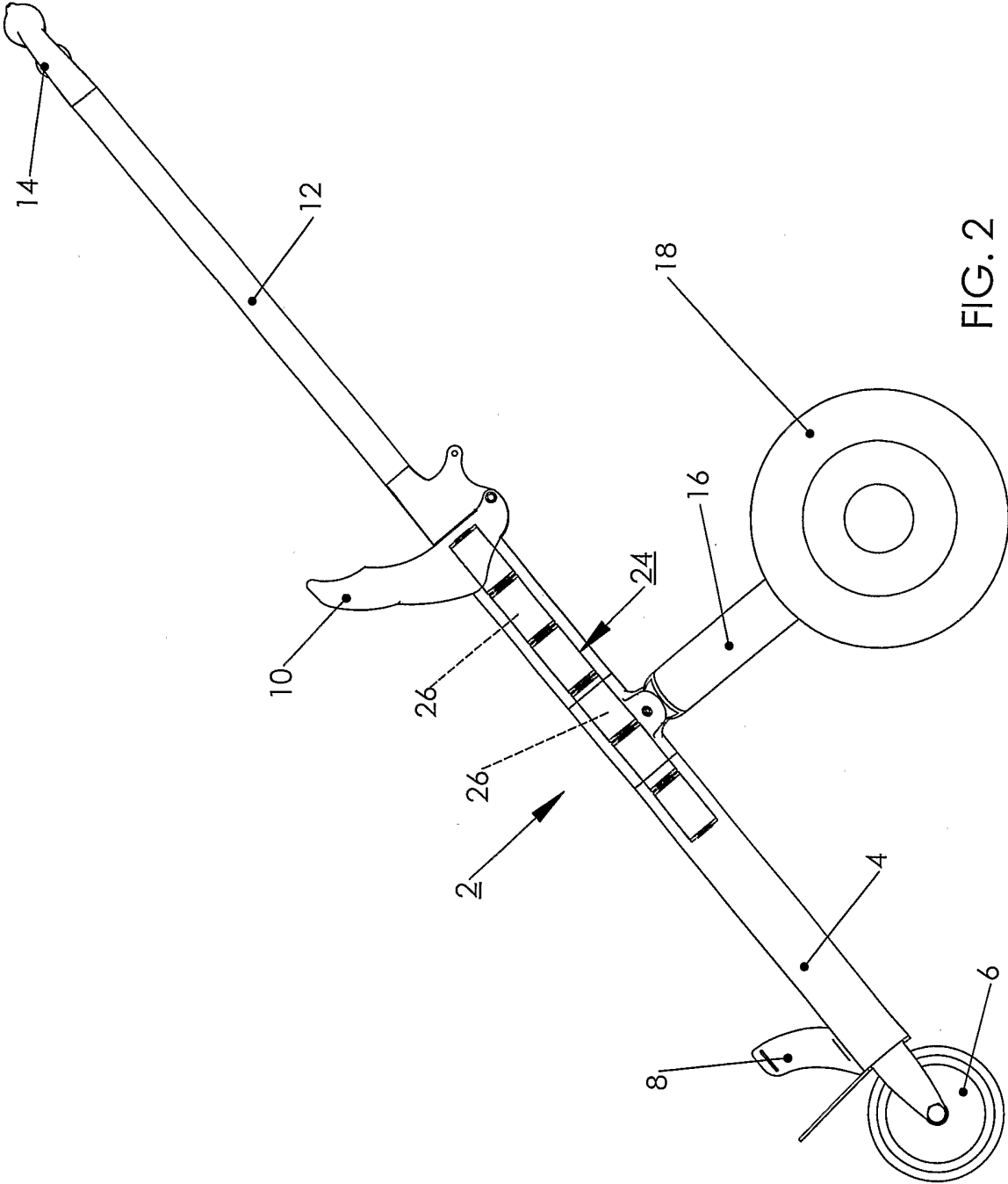


FIG. 1



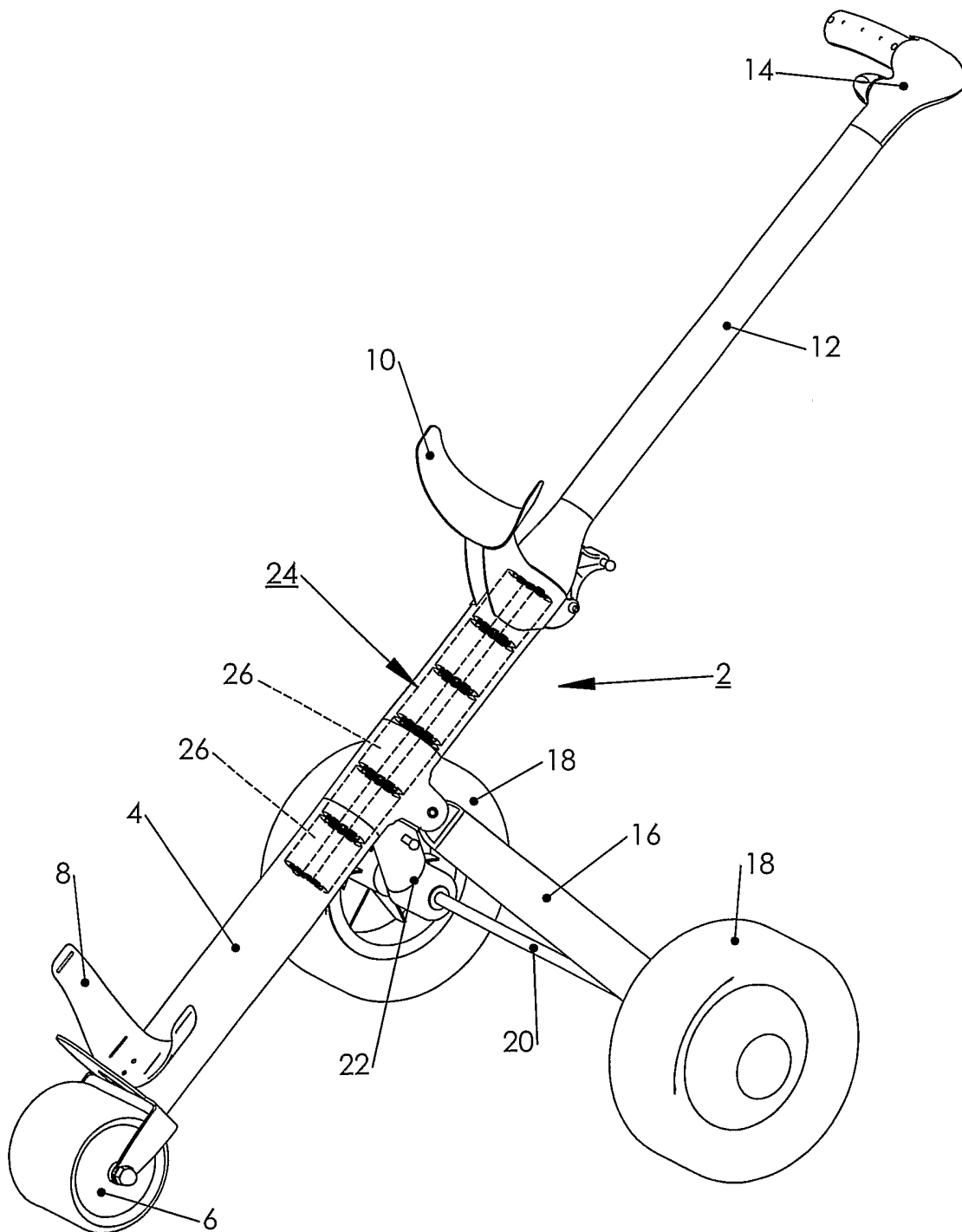


FIG. 3

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A63B55/08 B62B5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A63B B62B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 39 23 809 A (KEMPF WILFRIED) 24 January 1991 (1991-01-24)	1-5
A	column 2, line 56 -column 3, line 67; figure 1	6
Y	FR 2 733 187 A (HONDA MOTOR CO LTD) 25 October 1996 (1996-10-25) page 24, line 34 -page 25, line 20; figures 24,25A-25C	1-5

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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